

REMARKS

Applicant has amended claims 148, 152, 155 and 157, currently on file. Support for these amendments can be found throughout the application as originally filed, for example in paragraphs [0058] to [0061] and Figure 100, of the application as published by the United States Patent and Trademark Office. In addition, claims 150 and 151 have been canceled.

New claims 160 to 170 have been inserted into the application, wherein support for these new claims can be found throughout the application as originally filed, for example in paragraphs [0011], [0019] to [0021], [0037], [0059] to [0069] and Figures 500, 600, 650, 675, 800, to 1115, 1130, 1160 and 1900 to 1930 of the application as published by the United States Patent and Trademark Office.

Rejection under U.S.C. § 112

The Examiner rejected claim 150 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleged this claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The Examiner alleged that the disclosure as originally filed does not teach using unpackaged LEDs.

Applicant has canceled claim 150 and therefore respectfully requests that the Examiner withdraw this objection.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 148, 151, 152, 154 and 159 under 35 U.S.C. § 103(a) as being unpatentable over International Patent Application No. WO 99/16136 to Mills *et al.*, hereinafter referred to as Mills, in view of United States Patent No. 6,045240 to Hochstein, hereinafter referred to as Hochstein. The Examiner alleged that Mills shows a plurality of LEDs 43, thermal substrate 48, heat pipe 45 (pages 14 and 15 and Figure 5) located between the LED substrate 48 and heat sink 51 and control circuitry 42, 44 and 52. The Examiner

stated that Mills does not show using LEDs that have a first electrically and thermally conductive substrate connected to a second thermally and electrically insulating substrate. The Examiner alleged that Hochstein shows LEDs that include a first substrate 50 that is electrically and thermally conductive (column 8, lines 20-25) and a second substrate 56, 58 that is thermally conductive and electrically insulating and connected to a heat sink 36 (column 6, lines 5 to 34). The Examiner alleged that it would be obvious to one of ordinary skill in the art to modify Mills to include using LEDs as shown by Hochstein in order to better distribute heat away from the source and electrically isolate the conductive parts.

Without conceding to the correctness of the Examiner's position, but solely in order to expedite prosecution of the instant application, Applicant has amended claim 148 currently on file, more precisely defining the scope of protection being sought. Applicant has inserted the feature of "each of the plurality of light emitting diodes having a bottom surface configured as a heat transfer surface" and that the bottom surface of each of the plurality of light emitting diodes is mounted to the first substrate portion.

Applicant asserts that neither Mills nor Hochstein teach the features of the apparatus as explicitly defined in claim 148, submitted herewith. In particular, neither Mills nor Hochstein teach or even suggest that the apparatus comprises "light emitting diodes being capable of emitting light when supplied with adequate electrical current, each of the plurality of light emitting diodes having a bottom surface configured as a heat transfer surface and a first substrate portion upon which the bottom surface of each of said plurality of light emitting diodes are mounted, said first substrate portion being electrically conductive and thermally conductive".

In further support of this stance, Applicant asserts that in fact Mills expressly teaches away from the instant invention, wherein on page 8, last paragraph, Mills states that "the electrical connections of the LEDs, known as lead frames 44 are connected to respective positive and negative power terminals....these terminals are adapted to serve the dual function of heat sinks to help remove heat generated by the LEDs". Mills is therefore teaching that the lead frames associated with the LEDs are configured for heat transfer, and therefore expressly

teaches away from the bottom surface of the light emitting diode being configured as a heat transfer surface as is expressly defined by claim 148, submitted herewith.

Based on the above, Applicant asserts that a worker skilled in the art having regard to Mills in view of Hochstein, would not be led directly and without difficulty to the instant invention as expressly defined in claim 148, submitted herewith. Applicant therefore asserts that claim 148 is inventive over Mills in view of Hochstein.

Based on the above, Applicant asserts that as independent claim 148 upon which claims 152, 154 and 159 directly or indirectly depend, is inventive over Mills in view of Hochstein, these dependent claims are equally inventive over Mills in view of Hochstein. Applicant therefore asserts that claims 148, 152, 154 and 159 comply with 35 U.S.C. 103(a) and respectfully requests that this objection be withdrawn.

The Examiner stated that claims 149, 153 and 155 to 158 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mills in view of Hochstein as applied to claims 148 and 154 and further in view of United States Patent No. 6,331,111 to Cao *et al.*, hereinafter referred to as Cao. The Examiner stated that the combination of Mills and Hochstein does not show cups or cups with a reflective surface or cups with angled walls or a lens. The Examiner alleged that Cao teaches using LEDs that are located in cups 102a and Fig. 9, that have angled walls and coated with a reflective surface (column 9, lines 42-44) and also teaches using a lens 1407. The Examiner alleged that it would be obvious to one of ordinary skill in the art to modify the above combination to include LEDs as shown by Cao in order to best provide the desired light to the desired area.

Based on the above arguments, Applicant asserts that claim 148 on which claims 149, 153 and 155 to 158 directly or indirectly depend, is inventive over Mills in view of Hochstein. As Cao does not cure the fundamental deficiencies identified in Mills in view of Hochstein, claims 149, 153 and 155 to 158 are therefore inventive over Mills in view of Hochstein in further view of Cao. Applicant therefore asserts that claims 149, 153 and 155 to 158 comply with 35 U.S.C. 103(a) and respectfully requests this objection be withdrawn.

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The Examiner further stated that claim 150 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mills in view of Hochstein in further view of United States Patent No. 6,200,134 to Kovac *et al.*, hereinafter referred to as Kovac. The Examiner stated that the combination of Mills and Hochstein does not show using unpackaged LEDs, however alleged that Kovac teaches using unpackaged LEDs. The Examiner alleged that it would have been obvious for one of ordinary skill in the art to modify the above combination to include using unpackaged LEDs as shown by Kovac in order to make use of known LEDs used in the art.

Applicant has canceled claim 150 and therefore respectfully requests that the Examiner withdraw this objection.

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In view of the foregoing amendments and remarks, Applicants submit that the claims are in condition for allowance, and a notice to that effect is respectfully requested. The Examiner is invited to contact Applicant's undersigned representative if there are any questions relating to this application.

A check in the total amount of \$300.00 is enclosed to cover the one-month Extension of Time fee (\$120.00) and the Information Disclosure Statement fee (\$180.00). No additional fee is believed necessary with the filing of this paper. However, the Commissioner is hereby authorized to charge any fees that are required, or credit any overpayments to Deposit Account No. 07-1896 referencing the above-identified attorney docket number. A copy of the Transmittal Sheet is enclosed.

Respectfully submitted,

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